1: Drew G-3 (1862-1872) 1875 AV1 Kashmir AV1

farther back in the mountains, in the second or third ridge; they drain a larger area, and are subject to sudden falls of rain; such water-courses will in certain seasons be filled for a time by a wide and swift river, discoloured with red mud in suspension, carrying down in this way, as well as by dragging sand along the bottom, large quantities of material from the hills to the lower grounds and to the sea.

These ravines[1] are from a few hundred yards to a mile wide; they are bounded by a sudden bank, often cut into a river cliff of a hundred feet in height that shows to view the sandy and loamy strata. Their flat bottom is mostly sandy; it is sometimes covered in part with the long tufty jungle-grass called in these parts *khar*.

The plateaus between these ravines,[1] though, as before said, somewhat dry, have in great part been brought under cultivation; here, as the crops depend entirely on the rain, their yield varies much with the years.

The tracts where the jungle-grass abounds are frequented by the black-buck or antelope, which indeed, encouraged by the game-laws of the country,[1] spread into the cultivated parts and even herd with the cattle. Near these grassy tracts the villages are composed of pretty thatch-roofed houses; in India straw is never afforded for the purpose of thatching, it is all used as food for the cattle; indeed from the way the treading out the corn on the threshing-floor is carried on no whole straw is left, so it is only where some such material as that stiff grass can be got from the jungles that any thatching is done.

The 70-mile strip of plain extending from the Rāvī to the Chīnāb is crossed by two large streams that deserve separate mention. These are the Ujh, that debouches by Jasrota, and the Tavī, that comes out of the hills by Jummoo. They are both rivers of perpetual flow and considerable, though much-varying, volume. They rise in the mountains at the back of the Outer Hills at an elevation of 13,000 or 14,000 feet, but not from hills of permanent snow; they have a course among the hills, the Ujh of some 50 and the Tavī of 80 miles, before they reach the

[1] i.e. in the plains of SOUTHERN JAMMU. -- ANALYST

1; Drew G-8 (1862-1872) 1875 AV1 Kashmir AV1

IN FRONT OF THE COTTAGE IS A LEVEL

351 kept, where the people of the house spend nearly half their time,
356 and where their cooking places are arranged. The whole cottage is, as a rule, neatly kept and carefully swept; the higher castes, especially Brahmans and Rājpūts, give, considering their appliances, an admirable example in this respect.

361 The larger villages and the towns have a double row of shops,
[366] what is called a bazaar, each of which consists of much such a hut, with its floor raised two or three feet above the street, and with a wider doorway, and in front of it a verandah, where the customer may come and sit with the shopkeeper to transact business.

Of the towns in the Outer Hills there are none besides Jummoo of any great size, and there are only one or two others that can be said to be flourishing, for the poverty and the thinness of the population of the country round is against them. Since, however, some towns and some other places show features of interest, we will proceed to visit a few and note what has appeared worthy of observation.

EAST OF THE CHĪNĀB.

175 *Basoli* was the seat of one of the Rajaships between which
361 the low hills were divided before Jummoo swallowed up so many.
[642] A large building still remains that was the palace; it is now
[166] unkept and almost deserted. The town had already decayed but for the settlement in it of some busy Kashmīrīs, who by their trade of weaving bring some prosperity.

• [136] Basoli is one of several places in the low hills, being at the edge of a wood that is seldom disturbed, where the red monkey abounds; the monkey, being respected by the Hindūs and protected by the laws, has here come to be most bold, so he invades the town in great numbers, clambering over the palace walls and scampering across the chief open space of the town, and often enough doing mischief.

A day's march to the northward is *Balāwar*, which is the oldest seat of the rulers who afterwards went to Basoli. It is at the foot of a brushwood-covered spur of hill, and has beneath

1: Drew G-3 (1862-1872) 1875
AV1 Kashmir AV1

monly from 9 to 15 miles. We shall divide the distance into sections according as the characters of the country change.

JUMMOO TO AKHNÚR: ONE MARCH.

The length of this stage is 18 miles; it is a long march, especially for a first day's, and it might be conveniently divided into two; Nágbaní at 7½ miles would be the intermediate halting-place. The road, however, is easy, being altogether in the plain. For the first few miles from the city we pass through a narrow lane cut in the acacia forest, the lane bounded by tall hedges of *Euphorbia*. The forest abounds with wild pig; passing along at dusk one is sure to see several in the path, and there are spotted deer about, but they are shy and one does not often catch sight of them. Emerging from the forest we find ourselves well clear of the hills also, with the view unconfined by the lower ranges. We see in one glance a great length of the mountains that lie between us and Kashmir extending on the right; the look of them varies something with the time of year; I have made the journey oftener than once, and in different months; we will suppose it to be May, when the heat of the plains and of Jummoo has become oppressive, and one looks forward with delight to enjoy the cool air of the mountains.

In May, then, though the lower snow has melted, there remains much on the Panjál hills. High up spread fields of white snow, with both rocky peaks and snowy ones projecting from them. In front of them are the dark forest-slopes of the Middle Mountains, which are well seen in the opening of the Chináb and Ans valleys. The outermost low ridges clothed with green make the foreground.

The road goes on, a well-frequented one traversed by both carts and camels; we pass over a fairly cultivated plain, rather dry in soil; we go by some Government gardens and a few hamlets and villages. As we near Akhnúr we come on the line of an important canal the Maharaja is having constructed to bring the waters of the Chináb to the foot of the Jummoo hill. While we were three or four miles away from the foot of the hills the soil

1: Drew G-3 (1862-1872) 1875 AV1 Kashmir AV1

of hills, such as we have all along called the "Middle Mountains"; at Thanna we have reached to the foot of the slope of the Ratan Ridge itself.

In the march from Thanna to Baramgalla we go over the Ratan Pīr.* It is a good steep pull to reach the summit, which is 8200 feet above the sea; there is hardly any depression in the ridge at that spot. On some of the slopes the mountain is thickly covered with forest, a forest of much variety and beauty. Box grows here largely; it is cut and sent to the towns, where it is mostly used for making combs. On the higher parts of the ridge one meets with numbers of the great black and grey monkey, called *langūr*.

From the Ratan Pīr one looks north and north-eastward on to the Panjāl Range, and obtains grand views of its mountains. The descent also gives beautiful prospects, both of near forest views and of the more distant hills. The road is rough and difficult; one's pony, that was useful for the ascent, had best be allowed to go down the hill without a rider.

Baramgalla, which is the halting-place, is in the valley of the stream that rises near the Pīr Panjāl, and with many others goes to form the Pūnch River. It is shut in closely by spurs of the hills.

The next march, from Baramgalla to Poshiāna, is along the bottom of the narrow valley, among the large rounded stones of

* In these hills the word *Pīr* has come to be used more or less generally for Pass. The history of its acquirement of this meaning I conceive to be this. *Pīr* in Persian means first, *old*, or *an old man*, and thence a saint or *faqīr*. It is common for faqīrs to establish themselves on Passes for the sake of contemplating the works of God and of receiving the alms of travellers; when any noted holy faqīr died on a Pass, the place became sacred to his memory, and was often called after him, his title of *Pīr* being prefixed; at last it became so common for every important Pass to have a name beginning with *Pīr* that the word acquired the secondary meaning of Mountain Pass.

Ratan Pīr must be called so after one Ratan, which is a man's name among the Hindūs. As to Pīr Panjāl, the latter of the two words is applied to a great mountain ridge, at all events to the one we are coming to, I am not sure whether it is a general word for a range in any language. Pīr Panjāl now means simply the Pass of the Great Range. There was, however, at one time a faqīr who lived on it and bore the title of Pīr. Bernier, who crossed in Auranzeb's time, says there was a hermit on the Pass who had resided there ever since Jehāngīr. Bernier wrote this in 1665. Jehāngīr reigned from 1605 to 1628; by this the hermit would have dwelt there thirty-seven years at least. I imagine it was from him that the Pass acquired the first word of its present name.

2: Gervis T-3 (no date) 1954 AV1 Kashmir AV1

—the Raja's guest house. To sit on the lawns before this and watch the glorious changing of colours in the surrounding hills brought about by the setting sun, is a fitting finish to a good day's sport or a long trek, as in the air fresh and clear you listen to stories told of the day's play with rod and gun, for there is good fishing in the river and plenty of game on the slopes above.

Poonch is renowned for its bear hunts, its Rajas have always been the keenest of sportsmen, and seldom has a season passed in which there have not been at least two bear drives in each of which "honks", as they are called, forty or fifty bears have been shot, for they abound in the dense forest slopes round about. The shikaris of Kashmir insist that great numbers of black bears migrate in the autumn to Poonch where there is little if any snowfall during the winter.

Whereas the red bears of Gilgit spend the winter's hibernation in a cave, the black bears of Kashmir, where the mountain slopes are covered with firs, pines and other great trees, find a hollow tree trunk for those months of rest.

Unlike the red bear, which shikaris declare to be a more or less harmless creature only killing what he needs for his own food, the clumsy, rapacious black bear does an enormous amount of damage, killing off hundreds of young pine trees by ripping away the bark to get at the gum which exudes and of which he is as passionately fond as of honey, or by eating or trampling down fields of Indian corn—another favourite of his—destroying in a night sufficient to provide a poor peasant family for the whole season.

When the corn is ripening the farmers do their best to protect the crop from bears which invade it at that time; it is on the Indian corn that they fatten for the winter. Fires are lighted, the smoke drifting across the field; bears dislike this since they cannot get the sniff of a hunter through the smoke. In the middle of the field a small platform called a *machan* is built and on this sits a guard, his job being to scare the bears away when they come—they always feed at night. He blows horns, throws stones, or by pulling a long string rattles a can with stones in it, the can being tied to a tree or pole which may be a hundred yards away from him. But he is usually too

2: Gervis T-3 (no date) 1954 AVI Kashmir AVI

scared to come down from his perch to frighten the bear away; what is more, the bear knows this, and so feeds away happily in the long corn until the dawn, when it makes for the forests, there to hide up and sleep during the daylight hours.

His liking for meat is said to be acquired, hunters of a century ago speaking of meat-eating black bears as one now would of a man-eating tiger, but in these days the black bear is a bullock killer. It has been said that this desire for meat was first brought about when a cattle disease killed off many of the buffaloes; bears came across the bodies of the dead animals, tasted them, and took a liking for beef. In any case, since the bear is a killer of the cow—an animal sacred to the Hindu—a Raja would feel perfectly justified in despatching the bear.

It was whilst stopping in the guest house that I learnt a lot about bears, most of it from the head shikari to the Raja, the man who collected together hundreds of beaters for each of the hunts. It was from him that I learnt that bears breed once a year, the litter usually being two cubs, which remain with their mother for a year, going into hibernation with her for the winter during December, and remaining in the hollow tree stump until March, when, although they have no wish to go, the mother bear awakens and pushes them out into the snow to fend for themselves. She then returns to her bed, and within a few days the new litter is born. As is only to be expected after a mother bear has slept for over three months, her offsprings are pathetic little creatures with bodies which are almost hairless; it seems impossible that they can survive, let alone grow into great black bears which can bring down a full grown bullock.

For yet another month she remains in the tree stump, and when she finally stumbles out she is thin and weak; her limbs are stiff, so that the first day she only moves around for exercise, perhaps to chew on an old bone as the life comes back into her gums.

Very slowly she weans her cubs to the sunlight, she is herself not too strong, very different from the great fat mother bear which went into hibernation four months earlier, and she is now feeding her babies. Their first solid food is a few nibbles

2: Gervis T-3 (no date) 1954 AV1 Kashmir AV1

136 of the young shoots of grass, their teeth by this time having come through the gums, their fur has grown, and their eyes opened on the eighth day. As the weeks pass, she takes them higher into the hills with the thawing of the snows, then as they get bigger she gradually brings them lower into the valleys, until at the time when the mulberries are ripe, they get near to the villages to raid the groves at night. The whole time she carefully keeps them away from man, the one animal she has learnt to fear. When she senses danger she calls her cubs with a low whine, and they race back to her, standing for protection beneath her forelegs; if she has to move away, they run beneath her belly unnoticed.

The old shikari took me up the hill some miles away to where he knew an old she-bear had been hibernating that past winter. He suspected that she had had cubs; it was not until later that I fully appreciated the cunning of this experienced hunter, for he had waited for a day when the wind blew away from the tree stump close to the rocks where she had made her bed. We climbed the rock from behind, carefully selected each foothold so that no stone should fall, and on reaching the top and looking down, to his as well as my own astonishment, we saw the she-bear sunning with her one cub. Even then, although the wind was away from her, she sat up and lifting her head, with long snout twitching, sniffed the air many times; she knew that danger was nearby, and although the shikari was certain that she did not see us, she bundled her cub quickly back into the tree stump and followed it.

She was thin and gaunt, her coat matted, and it was difficult to believe that this lumbering creature could possibly step through the undergrowth and over twigs as lightly as a ballet dancer so that none could hear her; amazing that she could be so clever that when shot but not killed she would feign death and curling up roll down a slope to gather herself up at the bottom and make off into the jungle; surprising, yet, I am assured, a fact, that she can tell by smell whether the man who comes towards her is a coolie or a hunter, although I must admit one can smell some coolies—especially shepherds—hundreds of yards off. The one she takes little notice of, the other she has every reason to fear.

137 is largely exported to India, where it is used by the Hindus. The most important of the aromatic plants is the *Saussurea Lappa*. This grows at high elevations from 8,000 to 9,000 feet. The root has a scent like orris with a blend of violet. It is largely exported to China, where it is used as incense in the joss houses. It has many valuable properties, and is a source of considerable revenue to the State. There is a great variety of trees, but the oak, the holly, and the Himālayan rhododendron are unknown. Among the long list of trees may be noticed the *deodār*, the blue pine, the spruce, the silver fir, the yew, the walnut, and the Indian horse-chestnut. In the valley itself the exquisite plane-tree, the mulberry, the apricot, and the willow are perhaps the most familiar.

Fauna.

136 Kashmīr offers great attraction to the sportsman, and for its size the valley and the surrounding mountains possess a large and varied animal kingdom. A full account of the animals and birds will be found in *The Valley of Kashmīr*, chap. v. Since that book was written game preservation has made great strides, and has prevented the extinction of the *bārasingha* (*Cervus duvaucelī*) and *hangal* or Kashmīr stag (*C. cashmirianus*). Among the *Cervidae*, the musk deer (*Moschus moschiferus*) is common and its pod is valuable. Of the family *Ursidae*, the black bear, or *bomba hāpat* (*Ursus torquatus*), is very common, being a great pest to the crops and a danger to the people. The brown bear, or *lāl hāpat* (*Ursus arctus* or *isabellinus*), is still far from rare. It is partly herbivorous and partly carnivorous. Of the family *Bovidae*, the *mārkhor* (*Capra falconeri*) and the ibex (*C. sibirica*) are still to be met with. The Kashmīr *mārkhor* has from one to two complete turns in the spirals of its horns. The *takr* or *jagla* (*Hemitragus*) is found on the Pīr Panjāl, and the serow or *rāmu* (*Nemorhaedus bubalinus*) is fairly common. The *goral* (*Cemas goral*) also occurs.

There is a considerable variety of birds. The blue heron (*Ardea cinerea*) is very common, and fine heronries exist at several places. The heron's feathers are much valued, and the right to collect the feathers is farmed out. Among game birds may be noticed the snow partridge (*Lerwa lerwa*), the Himālayan snow cock (*Tetraogallus himalayensis*), the *chikor* partridge (*Caccabis chukar*), the large grey quail (*Coturnix*), the *monal* pheasant (*Lophophorus refulgens*), the Simla horned pheasant (*Tragopan melanocephalum*) and the Kashmīr Pucras pheasant (*Pucrasia biddulphi*). The large sand-grouse (*Pterocles arenarius*) is occasionally seen. Pigeons, turtle-doves, rails, grebes, gulls, plovers, snipe, cranes, are common, and storks

3: Imperial Gazetteer G-3 (1889-95) 1909 AVI Kashmir AVI

are sometimes seen. Geese are found in vast flocks on the Wular Lake in the winter, and there are at least thirteen kinds of duck. The goosander and smew are also found on the Wular Lake. There are six species of eagles, four of falcons, and four of owls. Kingfishers, hoopoes, bee-eaters, night-jars, swifts, cuckoos, woodpeckers, parrots, crows in great variety, choughs, starlings, orioles, finches (12 species), buntings, larks, wag-tails, creepers, tits, shrikes, warblers (14 species), thrushes (20 species), dippers, wrens, babbling thrushes, bulbuls, fly-catchers, and swallows are all familiar birds. 136 •

Among the reptiles there are two poisonous snakes, the *gunas* and the *tsolur*, the bite of which is often fatal. [262]

Fish forms an important item in the food of the Kashmīris. Vigne noticed only six different kinds, but Lawrence enumerated thirteen.

Temperature.

As the elevation varies from 1,200 feet at Jammu and 3,000 feet in the Indus valley at Bunji and Chilās to 25,000 and 26,000 feet on the highest mountain peaks, the State presents an extraordinary variety of climatic conditions. The local variations of temperature depend chiefly upon situation (i. e. whether in a valley or on the crest of a mountain range), elevation, and the amount of the winter snowfall and the period and depth of the snow accumulation. The effect of position in a valley or a mountain crest is shown by comparing the temperatures of Murree and Srīnagar. The Murree observatory is about 1,200 feet higher than the Srīnagar observatory. The mean maximum day temperature in January at Murree is 7° higher than at Srīnagar, and the mean minimum night temperature 9° higher. On the other hand, in the hottest month (June) the maximum day temperature is 1° lower at Murree than at Srīnagar, while the minimum night temperatures are almost identical. The diurnal range is 2° less in January, 7° less in June, and 14° less in October at Murree than at Srīnagar. The slow movement of the air from the higher elevations into valleys more or less completely shut in by mountains tends to depress temperature at valley stations both by day and night considerably below that at similar elevations on the crest of the Outer Himālayas, and to increase the diurnal range most largely in the dry clear months of October and November, when the sinking down of the air from the adjacent mountains has its greatest effect, and is supplemented by rapid radiation from the ground. The effect of snow accumulation in valleys in reducing temperature is very marked. At Drās and Sonāmarg, where the accumulation is usually large, the 132

133 bend round Nanga Parbat, where it assumes a south-westerly course. The mountains in the north stretch up to the Pamirs, and reach great heights; one of the peaks, Mt. Godwin Austin 28,250 feet above the sea level, is [136] the second highest peak in the world. The Himalayan ranges north and south of the Indus have been described as the "Sportsman's Paradise", where ibex, *markhor*, and ovis ammon, besides other big game, are met with. A number of mountaineering expeditions have been to these regions for exploration. Except in Gilgit, the ranges in this division vary from 17,000 feet to 22,000 [241] feet. The cultivable area in the Ladakh district is very small and the rainfall deficient, and agriculture is carried on by artificial irrigation. *Grim* (a kind of wheat) is the chief crop and is grown even at a height of 15,000 feet. The small tract of Gilgit enjoys good climate and cultivation, and produces wheat and other crops and fruits. The [162] area of the whole division is 63,554 square miles. The population is very sparse—the density at the census of 1941 was 5 persons to a square mile and the total population 3,11,478.

The first two of these divisions form the province of Jammu, the third is Kashmir proper, while the fourth comprises the district of Gilgit and the Frontier *illaqas* of Skardu, Ladakh, and Kargil.

132 **Climate.**—The climatic conditions of the country vary from the arctic cold of the Ladakh district to the extreme heat of the Punjab plains.

In the sub-montane and semi-mountainous tract of Jammu Province, tropical heat is experienced. Kashmir enjoys a temperate climate in summer, but is very cold in winter. In the Frontier district, especially in Dras, Zanskar and Rupshu, there prevails extreme cold. The deep narrow valleys between Kashmir and Gilgit are hot and damp. Kishtwar and Bhadarwah have a more salubrious climate.

Rainfall is scanty in the Frontier *illaqas* and the Gilgit district, but in the rest of the State it varies from 30 to 65 inches a year. Reasi and Poonch receive more than 60 inches each annually. The annual rainfall of the Jammu district is nearly 45 inches and that of Kashmir Valley varies from 30 to 35 inches.

Places of interest.—(A) The following are some of the

on the occasion of the visit of His Royal Highness the Prince of Wales. Besides imparting education by "shows" Departmental bulletins were also published and circulated. The bulletins dealt with the sowing of Maize, Groundnuts, Soybeans and Beans and the removal of certain crop diseases. 543

Manures.—The Agriculture Department has tried several manures on the farm to test their utility on different crops. 242 654

27. **Horticulture.**—The department maintains fruit plant nurseries including ornamental plants. Fruit canning is receiving attention though the industry is still in its incipient stage. A firm known as Kashmir Fruit Preserve Works has been authorised to manufacture fruit beverages, apple-brandy, grape wine and ciders etc. A new nursery has been opened at Achhabal and experiments regarding stock and scion compatibility have been started in all the nurseries and scion wood from Australia has been introduced. The department has been distributing about a lac of young plants annually to the zamindars without any charge.

The only disquieting feature of the decade has been the appearance of San Jose Scale disease which has inflicted a very heavy damage on the fruit industry of Kashmir. Remedial and control measures have been adopted to get rid of this pest. [136]

28. **Veterinary.**—For maintenance of agricultural prosperity the maintenance of live-stock in health is essential. Previous to 1923 the system of inoculation did not exist and consequently the mortality among cattle was heavy. There are now 18 Veterinary Hospitals in the State and the outbreaks of rinderpest, Haemorrhagic Septicaemia and other epidemic diseases were successfully dealt with on modern scientific lines and many animal lives saved. Facilities have been provided by the department for brining to its notice the outbreak of epidemics and even individual patients. For improvement of cattle several schemes have been under contemplation and awaiting to be put into effect as funds permit. The scrub bull pest is being removed by castration of the scrub bulls. The enclosed table shows the variation in live-stock during the last decade. 232

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132 *Temperature ° F.*

J.	F.	M.	A.	M.	J.	J.	A.	S.	O.	N.	D.	
30·7	33·0	45·1	55·7	63·9	69·5	73·0	70·8	64·0	53·2	44·0	36·3	Ra. 49·3

Precipitation, inches

2·7	2·8	3·6	3·8	2·3	1·3	2·1	2·3	1·6	1·2	0·4	1·3	Tot. 25·7

While the difference between the annual means at Simla (7200 ft) and Srinagar is less than 2° F. (55·1 at Simla, against 53·3), Simla temperatures for January, February, and March are 8·1, 7·6, and 6·4° above those of Srinagar, but those of July and August 8·7 and 8·0 less; the range at Simla is only 28·1°. Much of the precipitation is snow; the usual rains months (June–September) receive only 8·7 ins., January–March 9·1. It must be remembered that Srinagar is in the very bottom of the Vale, which as a whole receives 32–35 ins.

136 There is naturally a strong vertical zoning of climate and vegetation, and differences in exposure to insolation are most important. Immediately below the forests maize is the most important crop and walnut trees are numerous; at 7000 ft "hardy and stunted" types of paddy come in, to be succeeded by the better paddy of the lower terraces and the marshy tracts where the streams wind along through groves of willows.

241 The side valleys . . . have certain features in common. At the mouth of the valley lies the wide delta of fertile soil on which rice, plane-trees, mulberries, and willows grow luxuriantly; a little higher up the land is terraced and rice still grows, while the slopes are ablaze with the wild indigo, till at about 6000 feet the plane-tree gives place to the walnut, and rice to millets. On the south bank of the river endless forests stretch from the bottom of the valley to the peaks; and on the north bank, wherever a nook or corner is sheltered from the sun . . . pines and firs establish themselves. Further up . . . millets are replaced by buckwheat and Tibetan barley. Soon after this the useful birch-tree appears, and then come grass and glaciers, the country of the shepherds. [*]

Agriculture

811 Kashmir as a whole contains some 52 m. ac., of which 44 m. are unsettled or have no agricultural returns. Of the balance of 8 m. ac. about a quarter is cultivated, and a third of this quarter is in the Vale. Rice at lower and maize at higher levels are dominant, nearly half and over a third of the TSA respectively. Wheat has 10–12%, and the only other crops of much areal significance are linseed and rape.

241 Farming methods are very distinctive. Not much care (except the use of a rough rotation) is given to crops other than rice and garden produce. Rice is intensively manured, sometimes by piling farmyard refuse at the irriga-

[*] *Kashmir Gaz.* (1909), 4.

valley-floor "must have been at the level of the flat spurs, which now are 300 to 4000 ft above the valley." [1] The valley and foothills are largely formed of Eocene beds, dissected into sharp ridges which contrast strongly with the bolder granite forms of the mountain wall. 183

Climate

The climate of Ladakh may be illustrated by the figures for Leh, on a fan 182
in the Indus Valley at 11,500 ft:

Temperature °F.

J.	F.	M.	A.	M.	J.	J.	A.	S.	O.	N.	D.	
17·3	18·8	30·9	40·3	49·8	57·8	62·6	61·0	53·7	40·7	30·1	22·1	Ra. 43·3

Precipitation, inches

J.	F.	M.	A.	M.	J.	J.	A.	S.	O.	N.	D.	
0·4	0·3	0·3	0·9	0·9	0·8	0·5	0·5	0·3	0·2	0·0	0·2	Tot. 5·0

The absolute minimum is about minus 15° F.; mean annual pressure 20 ins.; mean relative humidity *c.* 40% from May to November, *c.* 70% in winter.[2] Further W, around Skardu, conditions are a little less extreme. In the thin atmosphere insolation and radiation alike take place at an extreme tempo; mechanical disintegration of the rocks is rapid, and the saying that a bare-headed man with his feet in the shade can get sunstroke and frostbite simultaneously is hardly an exaggeration. Aspect and diurnal variation are of the greatest importance; many streams even in summer flow for only a few hours a day when the ice melts in their gravel beds. Vegetation is extremely thin: a few bushes, a kind of furze (*burtse*), stunted cedars,[3] willows, alpine pasture: "timber and fuel are the most pressing wants of the people." [36]

But it must be remembered that here climate, like nearly everything else, is 'vertical' and the mountains receive a fair precipitation: "the vertical diversity of the climate makes human life possible in Indian Tibet. To the east, where the mountain ranges die out, the country is too dry for any permanent settlement." [4] Without the glaciers and snow-fields even the W would be a desert; and even so the life of the region is in a sense an oasis and caravan life.

The Human Response

We are really outside in *India* nor in Pakistan, but in Tibet: Baltistan, it 543
is true, is mainly Muslim, but in Ladakh proper are two-thirds of the sub-continent's 64,000 Buddhists, and Buddhist culture extends as far W as Kargil in the Dras valley.

[1] *de Terra*, 117-18.
[2] W. G. Kendrew, *The Climates of the Continents* (1937 ed.), 130-31.
[3] G. E. Hutchinson, *op. cit.*, 127-28.

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Kashmir
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Baltistan, the country between the Nu Shigar and the Nubra, is slightly more favoured than Ladakh, with *c.* 6 ins. precipitation and more glaciers; but it is still very harsh. The valleys at 8000–10,000 ft have a few patches of pine and deodar on the slopes, willow and poplar along the streams. Agriculture depends on the snow, which lies from mid-December to mid-March; in winter many villages are reached by the sun for barely an hour or two a day, but in summer the heat in the narrow rock-walled valleys—especially around Skardu—is intense. The usual crops, with ordinary and naked barley preeminent, are grown, a spring and an autumn crop where water is sufficient. Lucerne, carefully tended, is important, but except for intensive manuring of the sandy soils farming is extremely primitive, and rotations unknown. The hot summer enables a wide variety of fruits—peaches, melons, grapes, above all apricots—and even a little tobacco to be grown. But the absence of the demographically restrictive social institutions of Ladakh keeps the Baltis miserably poor. Here and there washing for alluvial gold eked out incomes a little, or at least enables revenue demands to be met.

To the E conditions get progressively worse. Around Panggong there are a few fields of barley and peas on the fans at 14,000 ft or a little more; at Tankse "the few houses that constitute the village seem to hide behind a little grove of willow trees planted on one side of a stream, as if these trees were the greatest treasure of a place that wished to put up a brave front, a green and damp façade, to the hostile dry world before it". But on the plateaux NE of Panggong even pastoralism is difficult. The Chang-chenmo Valley has some vegetation: tamarisks on the floodplain, *burtse* on the slopes, and just below the snow-line some flowering plants and patches of grass, shared by tame yaks and wild asses. Here and there hot springs "water the gravelly plains into producing a little green grass . . . so precious that each patch has a name."[*]

Yet this most negative of regions has its place in human history. The old trade to Yarkand and Kashgar is dead or dying, but at the hands of man himself: politics in Sinkiang and Kashmir are responsible for its decay, not the desolate leagues of rock and ice nor the murderous winds of the Karakoram. The passes are open for only five or six months of the twelve; but over them, carried on yaks or even sheep, travelled jade, hemp, and silk from China; from India goods from the bazaars of Srinagar and Amritsar, sugar and salt; borax from the dead lakes of Rupshu. Goods of low bulk, but to many of highest value, also traversed this, one of the strangest pilgrim routes of the world. Chinese disciples of the Enlightened One, seeking the shrines of Peshawar and Sarnath and Bodhi Gaya or the libraries of Taxila, fought their bitter way over these savage gables of the world; and here too came Christian men, perhaps fleeing from the tide of Islam, per-

[*] Shebbeare, *op. cit.*, 106–07, 128–38. For the facts of the next paragraph, *ibid.*, 108–11.